1	2	3	4	5
4.	Department of Bio-technology	320.00	445.00	39.06
5.	Department of Scientific & Industrial Research	650.00	846.00	30.15
6.	Department of Space	2200.00	2300.00	4.45
	GRAND TOTAL	4973.58	6053.74	21.72

(c) Yes Sir.

(d) The major new research and development areas in which new initiatives have been undertaken are: micro and nano technology; nurturing of science education in the country at undergraduate level; strengthening linkages between basic research and technology through the medium of students by setting up Homi Bhabha National Institute; further thrust to fast reactor research; laser and optics; establishment of an Offshore Barge Mounted Low Temperature Desalination (LTTD) plant; early warning system for oceanogenic disasters for Tsunami and Storm Surges; stem cell programmes; bio-engineering; nano biotechnology; bio-fortification of important crop plants, solanaceae genome sequencing; intellectural property & technology management, Information Communication Technology (ICT) infrastructure renovation and refurbishment; development of Oceansat-2 satellite for oceanography and coastal studies; development of an advanced multimedia INSAT (INSAT4E/GSAT-6) satellite for mobile users; regional climate modeling studies; advanced space materials research and development for future space transportation systems; advanced propulsion research initiatives; etc.

Tsunami devastation in Tamil Nadu

1882. DR. MALAISAMY: Will the Minister of OCEAN DEVELOPMENT be pleased to state:

(a) whether it is not a fact that Tamil Nadu was the worst hit and severely affected State in terms of loss of lives, and damages during the unprecedented Tsunami disaster that occurred on 26th December, 2004;

(b) if so, would it not be a hightime to establish Tsunami Warning Centre preferably in Tamil Nadu to forewarn the people living in coastal areas and to take up necessary mitigation measures;

(c) whether there has not been a proposal from the Chief Minister of Tamil Nadu to Establish a Tsunami Warning Centre at Chennai; and

(d) by when it could be established?

THE MINISTER OF OCEAN DEVELOPMENT (SHRI KAPIL SIBAL): (a) Yes Sir.

(b) to (d) Government is setting up an Early Warning System for Tsunami and Storm Surges covering the entire Indian coastline with the following components:

strengthening of the existing seismological network to indicate, near real time occurrence of tsunamigenic earthquakes;

installation of tsunami warning sensors close to the ocean bottom at appropriate locales in the Indian Ocean, with real tim connectivity;

Tide gauge and data buoys networking to validate arrival of tsunami waves at the coast;

Modelling of the inundation scenarios for the entire coast and mapping of potential risk areas;

collection of information, analysis and generating status advisories.

A centre would be set up at Indian National Centre for Ocean Information Services (INCOIS), Hyderabad on a 24x7 basis. The warning system is scheduled to be operational by September, 2007

The Government received requests from the State Government of Tamil Nadu, Andhra Pradesh and Orissa for locating Tsunami Warning System in these states. The decision to locate the Tsunami Early Warning Centre at the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad was taken with a view to make optimal utilization of the facilities created at INCOIS for Satellite Oceanography and Statellite Communication etc. INCOIS is the agency of the Ministry of Ocean Development in-charge of guidline and coordinating research in the field of ocean information and providing services such as Potential Fishing Zone and Ocean State advisories.